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PROCEEDINGS
OF
The American Microscopical Society.

MINUTES OF THE SEVENTEENTH ANNUAL MEETING,
Held at Brooklyn, N. Y., August 13th, 14th, and 15th, 1894.

MONDAY, *August 13, 1894.*

At half past ten o'clock on the morning of Aug. 13, 1894, nine members of the American Microscopical Society assembled in a room in the fourth story of the Brooklyn Polytechnic Institute. The place assigned by the local committee being very much out of the way, and it appearing that the chapel on the first floor was not occupied, arrangements were made to hold subsequent meetings in said chapel as much more accessible than the room first assigned. A telegram was received from the President that he was on the way, and would arrive in the afternoon, and it was agreed by the members present to omit the morning session and to meet at two o'clock in the afternoon.

At half past two o'clock in the afternoon of Aug. 13th, the Society again met. The President not having yet arrived, Prof. J. D. Hyatt of New York, was requested to act as President *pro tem*. The Secretary read the list of titles of papers on hand.

Mr. Drescher offered a resolution to postpone the reading of papers till the next day, which was carried. The Secretary read the paper written by him on the Conduct of the Proceedings, and published at the end of the last volume and the Society then adjourned to meet the next day.

It is usual for the volume to begin with the annual address of the President, but the Secretary has never received it although he has written repeatedly to the President for it.

TUESDAY, *August 14, 1894.*

The Society met at ten o'clock with twenty-two persons present, and the President in the chair.

The report of the Executive Committee containing the following recommendations was read and adopted :

The recommendations were that the Working Session and the Evening Exhibition should be omitted this year ; also, the Treasurer was directed to send through the Smithsonian Institution, complete sets of our Proceedings to the principal libraries in the following European cities : Paris, Berlin, Vienna, St. Petersburg, Melbourne and the Zoological Station at Naples under Dr. Dohrn, and also to the following institutions in the United States : Smithsonian Institution, Washington, D. C., Nebraska University, Lincoln, Neb., Minnesota University, Minneapolis, Minn., Michigan University, Ann Arbor, Mich., and to complete the partial sets which are already found in Yale college, New Haven, Conn., the Cincinnati Society of Natural History, Cincinnati, Ohio, and the Academy of Natural Sciences, Philadelphia, Pa.

On motion the President appointed the following members a nominating committee to propose names for officers for the ensuing year : Messrs. W. E. Drescher, E. Pennock, W. J. Lewis, F. L. James and Herbert Spencer.

A letter was read from Dr. James L. Reeves of Chattanooga, Tenn., extending a cordial invitation to meet in Chattanooga next year. The letter was referred to the Executive Committee.

The names of nine new members were then read as recommended by the Executive Committee, and the Secretary was instructed to cast the ballot of the Society for their election.*

The reading of papers was begun by the Secretary, who read the paper on "Formalin," by Dr. J. Melvin Lamb, of Washington, D. C.

Dr. R. O. Moody of New Haven, Conn., then read his paper on : " A Study of the Muscular Tunic in the Large and Small Intestine of Man in the vicinity of the Cæcum."

Mrs. Dr. Moody made a few remarks on the relations between this paper and that read at Washington, published in Vol. XIII.

Dr. Curtis asked if sacculations were not produced by contrac-

* For names see circular Part IV of Madison Proceedings, and list at end of this vol.

tions of the long fibers and the fibers became molded as wrinkles are produced in pieces of cloth.

Dr. Moody in reply to Dr. Curtis said.—If the sacculations were produced by contractions of the longitudinal fibres, when the longitudinal fibers were cut or removed, the sacculations should disappear. But as I have shown, they do not entirely disappear even when all the longitudinal bands are removed.

Dr. Curtis—In wrinkling there is long continued pressure on the summit of the sacculations greater than there is below, and hence the nutrition is less on the summit.

Dr. Moody.—The sacculations lie entirely between the longitudinal bands and do not in any case extend beneath these bands. So that portion of the intestinal wall which lies underneath the longitudinal bands is not sacculated, and is, therefore, of the same length as the bands. I do not see how this could be, if the sacculations were caused by the contraction of the longitudinal bands.

On behalf of the local committee, an invitation was then given by Dr. Brundage to the Society, to visit the Hoagland Laboratory in the afternoon. Dr. Brundage gave a short description of the origin and character of the institution which is incorporated in the description of the visit on the next page.

The Secretary then read the paper by Dr. W. W. Alleger of Washington, D. C., on the "Limitation of Tuberculosis."

Dr. Curtis expressed his approbation of the statements made and doubted if any person had such resisting powers that inhalation of the germs would not ultimately produce disease, although one or two years might elapse before its development. He referred to a recent paper in Koch's journal in which several people died successively in rooms not noticeably peculiar, but a portion of the wall of the room inoculated in animals, produced tuberculosis. A prominent surgeon of Chicago received the disease from an operation on a tuberculous joint, and was obliged to have his finger amputated.

Correct views as to the infectious nature of this disease should be inculcated as widely as possible in order that the spread of the disease through families and the public, by infection, may be avoided.

Mrs. Dr. Moody wished to add her testimony as to the success of disinfection where it was thoroughly carried out in families

where one had been sick, the other members escaped. She knew of this disinfection being carried out before the time of Koch. In careless families the second case was usually fatal. All kinds of dirt do not carry tuberculosis, it is the sputum. I use disinfectant inhalants simply prepared according to the case, especially iodine, which is extremely useful in catarrh, especially summer catarrh, and in some cases it prevents the development of tuberculosis. It is objectionable because it stains the clothing, but it arrests the progress of the disease which does not develop into tuberculosis.

Dr. Park also supported the above views as to the value of iodine. Thought it prevented the development of the disease even where there was a hereditary tendency to it.

Dr. Hunt of Brooklyn, said, the laity do not understand the importance of this subject.

Papers containing information so valuable to people at large as this should not be buried in the transactions of learned societies.*

Dr. Brundage : There is no specific yet known for tuberculosis. Creosote is useful, and isolation is important. I have in mind the deaths of a number of persons of the same family where contagion no doubt exists in their rooms. Some attention was paid to it, the walls were swept and some rags given away, but in such cases the paper should be removed, and the floors and wood work thoroughly scrubbed.

Dr. V. A. Moore : Most of the ideas here brought forward are well known to physicians, and to all persons interested in hygiene and preventive medicine, but there is another source of infection thus far omitted in this discussion, namely, tuberculosis in domestic animals, and their products, such as milk.

The prevalence of tuberculosis among cattle is well known and many instances are on record, where cows apparently in excellent condition were found to be tubercular by means of tuberculin. There is, to be sure, a difference of opinion regarding the danger of the milk of tuberculous cattle in which the udder is not affected, but the fact that in so many herds of cattle, mostly milch cows, as high as 80 per cent. have been found to be affected with this disease, shows to what an alarming extent this disease exists among the bovine species. It seems to me that the ultimate elim-

(* Note.—The paper of Dr. Alleger was published in full in the Brooklyn daily papers).

ination of tuberculosis from the human family will be accomplished only with its elimination from the animal tribes, so intimately associated with the food products of man.

Mr. Oertel remarked that infection may be carried by the house fly, and that covered receptacles should be used for the sputum.

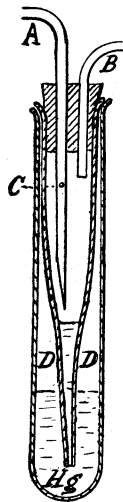
About thirty persons were present during this meeting, which adjourned to meet at the Hoagland Laboratory at two o'clock.

TUESDAY AFTERNOON.

At two o'clock the Society including about thirty persons assembled at the Hoagland Laboratory, where they were cordially welcomed by Dr. E. Z. Wilson in charge, who with the aid of Drs. Brundage, Jellifer and others, took pains to show everything about the building and its various purposes.

The Hoagland Laboratory, on the corner of Henry and Pacific streets, Brooklyn, N. Y., was built and equipped in 1890 by Dr. Charles N. Hoagland, one of the regents of Long Island College Hospital, which is immediately opposite on Henry street. The College and the Laboratory are entirely distinct in their organization and management, but they coöperate in so far as that the students of the college receive instruction in Bacteriology in the Laboratory, the second floor of which is arranged for their use. The members of the Society and their friends were very kindly received by Dr. Ezra H. Wilson, who is now in charge of the work, in the position formerly occupied by Dr. Sternberg, who has become Surgeon General of the U. S. Army. The first floor of the building is occupied by reception rooms and a large lecture room, the second floor, as has been stated, is used for the instruction of students, being divided into several rooms with the usual outfit of benches, sinks, microscopes and accessory apparatus and where thorough practical instruction is given to the College students in Histology, Pathology, Physiology and Bacteriology. Each student is made familiar with the use of the microscope in investigating disease, and also with the methods employed in recognizing known germs. Special courses in Bacteriology, open to all members of the medical Profession, are also given each year.

The third story constitutes the Bacteriological laboratory proper, since it is here that original investigations and examinations are carried out in the rooms arranged for that purpose, in one of which a large supply of pure cultures of almost every known bacillus are kept, and renewed as often as necessary to keep up the supply. In this room Dr. Wilson exhibited a simple thermostat or temperature regulator for culture baths, which he finds perfectly satisfactory, and which he devised himself after trying a number of the more costly forms. This instrument is herewith figured in section, and consists of two test tubes,



one within the other, the outer one of the ordinary kind, say six inches long, the inner one may be one that has the lower end broken and which must be drawn out into a taper, with a small opening at the end. The two tubes must fit snugly together, and be sealed air tight with wax at the upper end. Two or three centimeters of mercury are put in the outer tube, and a rubber cork pierced with holes for the gas supply pipe A, and the exit pipe B complete the apparatus. The gas pipe A has about three centimeters from its lower end a minute hole C, and the operation of the devices is as follows: The pipe A being connected with the gas supply, and the pipe B with the burner, the device is put in the air bath, or in such position as to take the desired temperature, and is regulated by sliding the tube A up or down so as to be more or less distant from the mercury level, according to the required temperature, which can be soon found by trial, so that if it grows too warm, the expansion of the air in the space D, forces the mercury up in the inner tube till it seals the mouth of the pipe A, and cuts off the gas gradually because of the oblique form in which the end of the tube is ground. The minute hole C is for the purpose of allowing sufficient gas to pass to maintain a constant flame, and not allow total extinction.

At first it was found a very difficult matter to make this hole small enough, but it was found that by closing both ends of the tube with the fingers or otherwise, and then arranging the blowpipe so that the tip of a small pointed flame would strike the desired spot, that in a minute or so the expansion of air in the pipe would blow out just the kind of a hole wanted, as Dr. Wilson demonstrated then and there.

The fourth story of the building is occupied by a library and reading room where over fifty of the leading bacteriological journals* are taken, and which is accessible to any physician in the city, and also by a number of small rooms fitted up for individual investigation, where any one who can show satisfactory evidence of competency is allowed to pursue original work. Here is also a finely equipped photographic room where the bacilli sit to have their portraits taken. Above in the attic is the menagerie where the supply of live stock necessary for a modern bacteriological laboratory is carefully kept till needed for the benefit of humanity. The laboratory has recently made an arrangement with the city board of health by which depots are established throughout the city, at which practicing physicians receive a small collecting apparatus for collecting diphtheritic germ exudates which are sent to the laboratory, cultivated, and a report returned to the physician as soon as possible. In this way it is hoped to obtain more certainty in diagnosis than the majority of practicing physicians would be likely to obtain. For this purpose the Laboratory is made a part of the health department of the city government, and the following circulars show the mode of working, the heading and addresses being omitted.

* Note. A list of these journals will appear in this volume.

CIRCULAR OF INFORMATION CONCERNING THE USE OF BACTERIAL CULTURES FOR THE DIAGNOSIS OF DIPHTHERIA.

Recent bacterial investigations have shown that a considerable proportion of the cases of pseudo-membranous and exudative inflammations of the throat and upper air passages, commonly considered as diphtheria, and having the anatomical appearances found in diphtheria, are not true, but false diphtheria. On the other hand, it has been shown that a considerable proportion of the cases which are apparently false diphtheria, prove, on bacterial examination, to be true diphtheria.

While in true diphtheria the mortality is very high, and the danger of transmission to others is great, in false diphtheria the mortality is low, and the danger of infection slight.

The differential diagnosis between true and false diphtheria can be made by bacteriological examination in twelve hours, while without this the differentiation is difficult or impossible.

The Health Department is now prepared to make use of bacterial cultures for diagnosis in all cases of suspected diphtheria occurring in the city, and desire that in every case either the physicians themselves should make the cultures, or should authorize an inspector to make them. They should be made in every suspicious case at the earliest possible moment, for during convalescence the specific organisms often disappear from the throat, and the full benefit of a positive diagnosis is not obtained unless it is made early in the disease.

The cultures are made by gently rubbing a cotton swab against the throat, and then drawing it over the surface of the culture medium. When the physician himself desires to make the culture (and this is usually the better plan, for it can be done earlier and is more agreeable to the family) he can obtain, free of cost, a culture tube and swab, and simple directions for their use, at any one of the druggists whose addresses are given below. After the culture is made, the tubes are to be returned to the druggist from whom they were obtained. The tubes will be collected by the Department every day. In cases where the culture has not been made by the attending physician, the medical inspector will make one, unless for any reason the physician requests that none be made when he notifies the Department of the case.

The diagnosis will be ready the following afternoon, and can be obtained by the physician immediately by telephoning to the Laboratory, or when this is not done, he will be notified by mail. Cases which prove to be false diphtheria will not be visited by the Health Department inspectors. Cases, on the other hand, which prove to be true diphtheria, will be subjected to the rules and regulations covering contagious diseases.

The bacilli usually disappear from the throat shortly after the disappearance of the exudate, but later investigations have shown that as long as from three to five weeks may elapse before their entire disappearance. In these cases the patients, although apparently well, are capable of transmitting the disease.

It is important, therefore, in order to be able to decide with certainty the time when a patient is free from contagion, to have 2d, 3d, 4th, etc., cultures made at intervals of about four days. This applies only to cases occurring in boarding houses, hotels and tenement houses—not to those in private houses. The following forms illustrate the reports made to the physician from whom the culture is received.

BROOKLYN, N. Y., 189 .

Dr.

Dear Sir :

The examination of the cultures made by inoculating the tubes with the exudation from the throat of A. B. on Agar Agar does not show the presence of any diphtheria bacilli.

The case is therefore not true diphtheria,¹ but pseudo or false diphtheria, and no further cognizance will be taken of it by the Department unless by the special request of the physician in attendance.

BROOKLYN, N. Y., 189 .

Dr.

Dear Sir :

The examination of the cultures made by inoculating the tubes with the exudation from the throat of on shows the presence of the diphtheria bacilli.

The case is therefore one of true diphtheria.

BROOKLYN, N. Y., 189 .

Dr.

Dear Sir :

The examination of the cultures made by inoculating the tube with the exudation from the throat of on does not admit of an exact bacteriological diagnosis, for the following reasons :

A. The inoculation was made at so late a period in the disease that it is possible that the diphtheria bacilli, though now absent, were at an earlier time present.

B. The growth on the culture media was so scanty that it is probable that the inoculation was not properly made, or that some antiseptic had been applied to the throat shortly before obtaining the material for inoculating the tube.

C. The culture media was badly contaminated.

D. The serum in the tube was too dry to permit of the growth of the diphtheria bacilli.

a. Another culture is requested.

b. The case will be treated as one of diphtheria.

c. The case will be treated as one of false diphtheria unless the physician in charge of the case requests otherwise.

¹This conclusion is based on the supposition that the directions have been properly carried out, and that the inoculation was made before the commencement of convalescence. After convalescence is established the bacilli often disappear from the exudate.

WEDNESDAY, Aug. 15, 1894.

The meeting opened at ten A. M., with thirty-three persons present.

Dr. Joseph H. Hunt and Dr. Albert H. Brundage of Brooklyn, N. Y., were elected members.

The nominating committee presented the names for consideration by the Society to serve as officers for the ensuing year.

The report of the nominating committee was accepted, and the persons nominated were unanimously elected as follows :

President—Professor Simon Henry Gage, of Ithaca, N. Y.

Vice-presidents—Dr. Veranus A. Moore, of Washington, D. C. ; Henry G. Hanks, of San Francisco, Cal.

Treasurer—Magnus Pflaum, of Pittsburg, Pa.

As members of the Executive Committee—Dr. Robert O. Moody, of New Haven, Conn. ; Charles S. Schultz, of Hoboken, N. J. ; Professor Henry B. Ward, of Lincoln, Neb.

The term of the Secretary has not yet expired.

The report of the Executive Committee with respect to the prizes which the Society was enabled to offer by the liberality of its president, Dr. Lester A. Curtis, was then read as follows ;

Seven papers with their accompanying slides, drawings and photographs were submitted in competition for prizes and after careful consideration the committee awarded them as follows :

To Karl McKay Wiegand of Ithaca, N. Y., for his paper on The structure of the fruit in *Rauunculaceæ*, the prize of thirty dollars for original research in botany.

To Benjamin F. Kingsbury of Defiance, Ohio, for his paper on The histological structure of the Euteron of *Necturus maculatus*, the first prize for original research in Zoology of fifty dollars.

To Agnes M. Claypole of Akron, Ohio, for the second best paper in Zoology on "The Euteron of the Cayuga lake lamprey," the prize of thirty dollars.

To Dr. Wm. C. Krauss, of Buffalo, N. Y., for a set of photomicrographs of slides illustrating the structure of the medulla of a female child, the prize of fifteen dollars.

The papers will appear in our proceedings.

The Treasurer, Mr. C. C. Mellor then presented his report of the finances of the Society for the past year, which had been examined by the auditors and declared correct.

The report was accepted and will be found at the end of these minutes.

Mr. Drescher made some appropriate remarks on the death of Dr. Mallory of Rochester, N. Y., who exerted himself last year as chairman of the local committee to make the Rochester meeting of the Society successful.

Dr. F. L. James presented a design for a Seal for the Society in fulfilment of a promise made some years ago. The design was referred to the Executive Committee.

Dr. James also moved, that in view of the resignation of Mr. Mellor as Treasurer, the thanks of the Society should be given to him for the successful manner in which he has performed the laborious duties of his office.

Professor Gage seconded this motion, expressing his hearty appreciation of the long and faithful services of Mr. Mellor, and the resolution was unanimously passed.

Mr. Mellor then briefly thanked the Society for the consideration shown him during his term of office.

Mr. Pennock then exhibited and explained some new apparatus consisting of various accessories to the microscope which will be hereafter described and illustrated, including a polarizer, condenser, and section cutter.

Professor Gage then showed a marker by which the position of objects on a micro slide could be distinctly marked by a circle of shellac varnish. He first showed the diamond marker which is expensive and not altogether satisfactory.

Mr. Drescher said it was difficult to have a diamond set satisfactorily, we are often obliged to reset them.

Professor Gage : And then it is difficult to see the fine scratch, immersion fluid soon fills it up. Shellac is easily removed if desired and can be seen by the naked eye.

Dr. W. J. Lewis : How much time is saved by this apparatus? I sometimes make two or three points near by. I have had much occasion to use a mechanical stage provided with rectangular verniers reading .05 in. In photographs, I can turn to my index and find the spot at once.

Professor Gage : We have to have apparatus for a large number. I cannot give all mechanical stages with verniers but I can lend my marker to any number of students. The ring serves as a finder for any microscope.

Dr. W. J. Lewis : My finder is a Maltwood.

Dr. Krauss : This idea is a good one but even if you have a ring around the object it is often difficult to tell another where the group is even when in proper position. It is better to have a micrometer eyepiece with numbered squares.

Professor Gage : Even then it is necessary to find the square in the eyepiece, and for such use an eye lash arranged in the eyepiece as a pointer so that the student cannot help knowing what object is meant seems to me one of the best means ever devised.

Professor Claypole's paper, "On the Structure of the Teeth of the Devonian Cladodont Sharks," was then read by Professor Gage. At the conclusion of this paper Dr. Wm. C. Krauss read his paper on "Simplification of Laboratory Methods."

Professor Gage said that although this method was introduced as suitable for those who do not have much apparatus, it was also well adapted for those who do have.

The Secretary inquired how the ink on the labels was prevented from mixing with the preserving solution. Dr. Krauss said the corks floated with the paraffin block on the under side, and the label on the upper side in air.

Professor Gage suggested wooden blocks might be used.

Mr. Oertel thought a lead pencil would give a permanent insoluble label.

The morning session then adjourned.

WEDNESDAY AFTERNOON—at 2:15 o'clock.

The Society again met with twenty-eight persons present.

An important paper was read by Dr. Charles F. Craig of Danbury, Conn., entitled, "A Study of the Microscopic Phenomena of Inflammation, with Special Reference to the Diapedesis of the White Blood Corpuscle."

Professor Gage : To any one who has made a study of inflammation this paper is of the highest importance. It is well to repeat the observations of great men who have laid the basis for our present doctrines. The new observations Dr. Craig has added are of real value, and I was struck with the knowledge and skill with which the investigation was carried out. It was a good thing to compare the leucocytes of fresh frogs with the amœba, the resemblance is forcibly impressed on the observer.

Those who are to be real physiologists or physicians will find physiology something more than mere mechanics. We heard at the American Association for the Advancement of Science a few years ago that we were on the eve of knowing what life is. But, if to-day, we are no farther off from a knowledge of what life is, we certainly do not seem to be much nearer. I hope Dr. Craig will continue his work so ably begun.

Dr. Oertel : Did polynucleated or single nucleated cells predominate?

Dr. Craig : The cells were large, but there were no polynucleated forms. The latter were not in the same location, and it was very difficult to distinguish between them, they were so crowded.

Dr. V. A. Moore : What Dr. Craig depended on was an accumulation of inflammatory products not noticeable to the naked eye, and what has been described is the beginning of inflammation, which when extensive is soon hidden. One of the most valuable observations is that the white blood corpuscle retained its peculiar shape preparatory to penetrating the walls of the vessel which is not generally known.

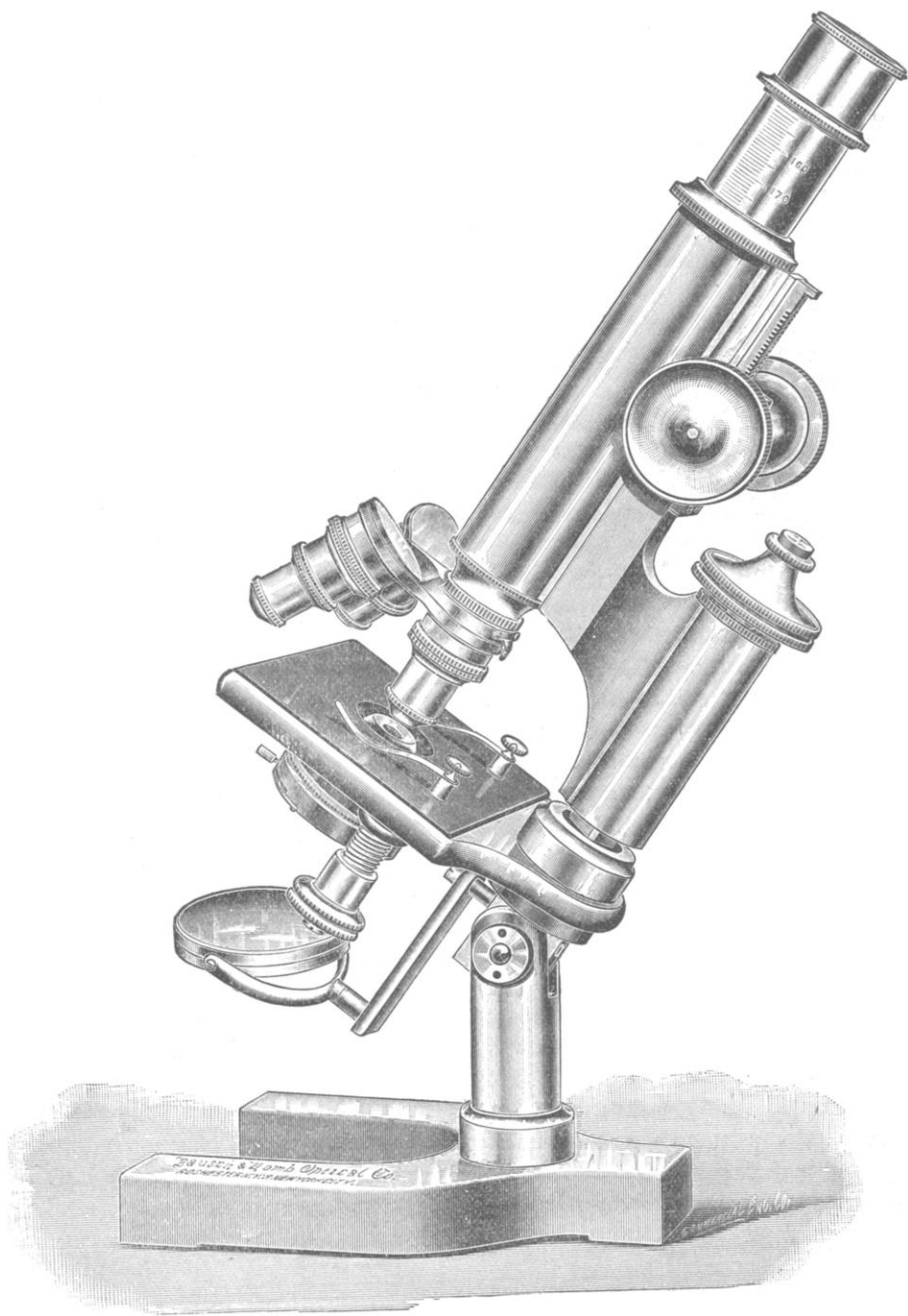
Professor E. D. Cope : The processes of reproduction are not chemical processes. The processes of adult living bodies may be chemical.

Mr. Drescher then exhibited a new form of the Bausch and Lomb Continental Microscope.

A NEW CONTINENTAL MICROSCOPE.

The instrument herewith shown is an improved form on the Continental Microscope, of the same pattern exhibited before this society some years ago. It is known as the BB pattern of the manufacture of Bausch & Lomb Optical Co., Rochester, N. Y. The instrument, as reconstructed, embodies many new features and advantages, some of which are not possessed by any other microscope in the market, and which are italicized in the description which follows :

The stand is made of brass throughout, highly polished and lacquered. The *corners and edges* of base, stage, etc., *are rounded*, making the instrument pleasant to handle and easy to clean. The *base* is of *unusually large size*, giving perfect stability at any angle of inclination, and ample space for manipulation of mirror. The *stage* is of *large size* and *has a hard rubber plate* fitted to its upper surface. *By a new process* the *rubber* is made to *form a chemical combination with the brass*, hence this stage plate will not warp or be liable to the many defects of hard rubber plates held



NEW CONTINENTAL MICROSCOPE.

by screws. The *substage* accessories are *carried* in a ring moved by *quick acting screw*, allowing very delicate adjustment of condenser or diaphragm. The entire substage can be swung to one side when not in use. *A strong guide* and a centering pin *prevent decentering of the substage*. In addition to this the substage can be centered by means of a slotted ring. The *mirror* is *large*, adjustable, and is provided with a *stop in the optical axis*. The joint has a conical steel pin for taking up wear, and *steel stops* for holding body at *exactly 90°*. *Coarse adjustment* is by *diagonal rack and pinion*. The *sliding parts* of this *adjustment* are made by a *new process*, and will be found to *fit perfectly*, giving a very *soft, easy motion* without wearing loose. The *pinion box* is *especially well made*, and thoroughly tested in every case. These are guaranteed never to wear loose, or become defective. The *rack* is *furnished with a stop* to prevent jamming the pinion teeth. The fine adjustment is by micrometer screw, working in a *steel nut* on the triangular bearing of the arm. The improved construction of this fine adjustment eliminates the lateral motion so common to many microscopes. The draw tube is nickel plated, and graduated to millimeters. It slides in the *cloth lined main tube*. The draw tube, when placed at the 145 mm. mark, gives short standard of tube length when double nosepiece is used.

Professor Gage then read two papers by Miss Agnes M. Claypole, of Akron, Ohio, the first on : "The Enteron of the Cayuga lake lamprey," and the second on : "A new method of securing paraffin sections to the slide."

Professor Gage referred to a large diagram showing the various phases in the life history of the lamprey to make intelligible the references in Miss Claypole's paper.

Quoting the summary of the paper it was shown that both larva and adult coagulated milk introduced into the enteron, hence it was concluded that the lamprey at all periods of its life possesses a milk curdling ferment. Normally the food of the larva consists of microscopic forms and of the adult, pure blood ; it therefore seems puzzling, in our present state of knowledge, to see the object of the curdling ferment.

Professor Cope : Do the adults take any tissue with the blood ?

Professor Gage : Very little if any. There is a raw spot on the fishes to which they have been attached, where the rasping tongue breaks through the tissues and opens blood vessels. It is possible that a small amount of tissue would be swallowed with the blood, but the amount in any case is small. In tracing the changes in the blood swallowed in a freshly caught lamprey, it was easy to demonstrate the blood corpuscles in the first part of

the alimentary canal. In following backward the corpuscles disappear and numerous hemoglobin crystals appear, the blood growing constantly darker till near the middle of the enteron the oxygen of the hemoglobin has been extracted and the blood shows only the band of reduced hemoglobin under the micro-spectroscope. This shows that in the process of digesting the blood the lamprey, among other things, extracts the oxygen from the oxyhemoglobin. This is probably used for respiratory purposes, and we have here an example of an animal that takes its ordinary and respiratory food together.

Dr. V. A. Moore: The fixing of sections is an important matter. The painting over with collodion would seem to interfere with staining, especially when the aniline dyes were used. I have had much trouble in this direction with the gelatine and collodion fixing agents.

The coagulation of the milk in the intestinal tract may be due to the action of bacteria. It is well known that there are large numbers of bacteria which coagulate the casein of milk and it is possible that some of them are present in the intestine of this animal.

Professor Gage: The juices of some plants coagulate milk without bacteria, as the juice of *Pinguicula vulgaris*.

Mr. Wallace Gould Levinson exhibited a Beck popular microscope adapted for the examination of minerals of which he gave the following description.

Ordinary microscopes will only admit of a thin slip, or other thin object under the objective, because the stage is so close, so I have arranged the stage of this instrument on a sliding clip so that it can be racked clear down to the end of the bar, giving any amount of room for the admission of pieces of minerals. All its parts are made of aluminum except the screws of the mechanical stage and the rack and pinion.

Mrs. S. P. Gage spoke of the difficulty of making drawings with low powers with a camera lucida, because she could not get the instrument far enough from the paper.

The Secretary mentioned that Dr. Beale made drawings large enough for charts, by laying his paper on the floor, and letting the eye piece of the instrument project over the edge of the table.

Dr. M. L. Holbrook of New York City, then read his paper

entitled, "A Third Study of the Blood Haematoblasts and Plaquettes."

Dr. V. A. Moore : This work is especially interesting to me, as I have frequently observed the various appearances of haematoblasts in Texas cattle fever. In regard to technique, the blood is collected in the field and examined freshly dried upon its slide.

Mrs. Dr. Moody : I am delighted to know that the changes of blood are attracting attention. Physicians are constantly wishing for time to do this kind of work, but very few of them have the time and skill to do it.

Professor Gage : It has been with great pleasure that I have listened to this paper. It is now believed by a large number of physiologists that leucocytes are not destroyed to produce coagulation. From the careful experiments of Dr. Kemp it has been shown that the number of leucocytes is not decreased during the coagulation process when the experiments are conducted in such a way as to leave the blood in as normal a condition as possible. Certain it is, too, that if the plasma of the blood or lymph is obtained quite free from leucocytes by allowing them to settle in the cold or by the centrifuge, the coagulation of the plasma seems in no way to be interfered with.

Dr. Ephraim Cutter of New York City, then gave a vivid description of a one-seventy-fifth objective whose performance he considered a triumph for America, and a great credit to Mr. Tolles by whom it was made. He invited any one desiring to see its performance, to visit him at the Equitable building, room 4, New York City, where he had facilities for showing it.*

Dr. Moody offered a resolution that the Secretary send the thanks of the Society to Dr. James Reeves of Chattanooga, for his kind invitation to meet in that city next year, and also that the thanks of the Society be expressed to Mr. Shearer of Bay City, Michigan, for the donation of the large album of beautiful photomicrographs which he had sent to the Society, and which were examined by the members with great pleasure. Both resolutions were unanimously adopted.

Professor Gage then moved that the thanks of the Society should be tendered to the Polytechnic Institute for the use of their

*A description of this objective may be found in the *American Monthly Microscopic Journal*, Vol. XIV, pp. 299-304.

building, and also to the local committee, and especially to Drs. Brundage, Jellifer, Wilson and others, for the care they had extended to the Society to render its meeting successful. The resolution was adopted.

Professor Gage then stated that Mr. E. W. Griffith was seriously ill, and that we had so often met him at our meetings, it would be a graceful act to extend our sympathy to him in his sickness.

The President confirmed the statements of Professor Gage, and the Society directed expressions of sympathy to be sent to him.

Dr. Curtis then resigned the chair to the President elect, Professor S. H. Gage of Ithaca, N. Y., who made the following remarks :

Fellow Members :

It is with some reluctance that I accept this position, for every honorable position like this brings with it many time consuming duties. I shall do my best, however, to perform these duties in the same spirit of devotion and enthusiasm shown by my predecessors. I believe the society has in it the elements of great good, and I trust that the year before us will be one of renewed prosperity and success.

I suppose it is no secret that we are to go to California next year if matters pertaining to transportation can be satisfactorily arranged. If we go there or wherever we go I hope to see a hundred members present in addition to those now before me.

The society then adjourned to meet next year at such place as the executive committee may select.

REPORT OF THE TREASURER.

FROM AUG. 14, 1893, TO AUG. 14, 1894.

RECEIPTS.

Cash on hand at opening of Madison meeting, Aug. 14, 1893, . . .	\$238 65
Received dues for 1892 3	\$ 6 00
“ “ 1893 20	40 00
“ “ 1894 213½	427 00
“ “ 1895 11⅔	22 80
“ admission fees 9	27 00
“ for member for meeting only	1 00
	<hr/>
	523 80
“ from sale of Proceedings	8 00
“ “ use of plates	2 00
	<hr/>
	\$772 45

EXPENDITURES.

For printing, engraving, binding, mailing, etc., number of Proceedings, Vol. 15	\$493 18
For sundry expenses, stamps, freight, stationery, blank books, etc.	98 95
Cash on hand at opening of Brooklyn meeting, Aug. 13, '94	180 32
	<hr/>
	\$772 45

REPORT OF SPENCER-TOLLES FUND.

Cash on hand at opening of Madison meeting	\$330 06
“ received interest	19 32
	<hr/>
	\$349 38

(Signed) C. C. MELLOR, Treas.

We hereby certify that we have examined the foregoing account and find
the same correct, with proper vouchers for expenditures.

(Signed) F. W. KUHNÉ.

BROOKLYN, Aug. 14, 1894.

R. SALMON.